

CLAIMS:

1. A pneumatic tire comprising:

steep-angle grooves provided at opposite sides of a tire equatorial plane of a tread, the steep-angle grooves each being inclined at an angle of not more than 45 degrees relative to a tire circumferential direction such that the steep-angle grooves contact the ground from a tire equatorial plane side, and an end portion of each of the steep-angle grooves at the tire equatorial plane side terminating within a land portion; and

recessed portions formed along a tread surface side edge of a land portion adjacent to an inner side in a tire axial direction of the steep-angle grooves, the depth of the recessed portions increasing and the width of the recessed portions decreasing from a middle portion in a longitudinal direction toward an end portion at the tire equatorial plane side of the steep-angle grooves.

2. The pneumatic tire as claimed in claim 1, wherein

an angle of a boundary line at the tire equatorial plane side between the recessed portions and a tread surface of the land portion relative to the tire circumferential direction is set to not more than 15 degrees in a plan view of the tread, and

an angle of a land portion side wall surface of the recessed portions relative to a line normal to a tread surface of the tread is set to not more than 30 degrees in a cross sectional view along a tire radial direction and intersecting the longitudinal direction of the steep-angle grooves.

3. The pneumatic tire as claimed in claim 1 or 2, wherein a boundary line at the tire equatorial plane side between the recessed portions and a tread surface of the land portion is arranged such that a boundary line of the recessed portions at one side of the tire equatorial

plane and a boundary line of the recessed portions at another side of the tire equatorial plane are respectively aligned in a straight line in the circumferential direction, or are spaced apart from each other at an outer side in the tire axial direction.

4. The pneumatic tire as claimed in any one of claims 1 to 3, wherein the recessed portions are formed to extend from a middle portion in a longitudinal direction toward an end portion at the tire equatorial plane side of the steep-angle grooves, and the length of the recessed portions measured along the tire circumferential direction is set within a range of from 25 to 50 % of an arrangement pitch of the steep-angle grooves in the tire circumferential direction.

5. The pneumatic tire as claimed in any one of claims 1 to 4, wherein the height of a deepest portion of each of the recessed portions measured from a groove bottom of an adjacent steep-angle groove toward an outer side in a tire radial direction is set within a range of from 25 to 75 % of the groove depth of the steep-angle grooves.

6. The pneumatic tire as claimed in any one of claims 1 to 5, wherein the steep-angle grooves are arranged with a mutual phase difference in the circumferential direction provided at respective sides of the tire equatorial plane.

7. The pneumatic tire as claimed in any one of claims 1 to 6, wherein the angle of the steep-angle grooves relative to the tire circumferential direction is set within a range of from 5 to 30 degrees.

8. The pneumatic tire as claimed in any one of claims 1 to 7, further comprising transverse grooves provided at outer sides in the axial direction from the steep-angle grooves, wherein each of the transverse grooves opens at a tread ground contacting area end.

9. The pneumatic tire as claimed in any one of claims 1 to 8, further comprising circumferential grooves extending in the tire circumferential direction, each of the circumferential grooves being disposed in an area within 40 to 60 % from the tire equatorial plane side with respect to a tread half width that begins at the tire equatorial plane and ends at the tread ground contacting area end.